

## RESPONSE TO OFFICE ACTION

Serial No. 10/660,151

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**REMARKS**

This response is intended as a full and complete response to the Final Office Action dated July 19, 2005. In view of the amendments and the following discussion, Applicants believe that all claims are in allowable form.

**CLAIM REJECTIONS****35 U.S.C. §103(a)                      Claims 1-25**

Claims 1-25 stand rejected as being unpatentable over United States Patent No. 6,322,714 issued November 27, 2001 to *Nallan, et al.*, (hereinafter referred to as "*Nallan*"). In response, the Applicants have amended claims 1 and 3 to more clearly recite aspects of the invention. Claim 2 has been cancelled without prejudice.

Independent claims 1 and 21 recite limitations not taught or suggested by *Nallan*. *Nallan* teaches a process for etching polysilicon using a photoresist mask. *Nallan* does not teach or suggest a gas mixture used for etching polysilicon that includes N<sub>2</sub> gas. The Applicants respectfully disagree with the Examiner's assertion that it is obvious to include N<sub>2</sub> gas when NF<sub>3</sub> is utilized for etching.

The Examiner states that *Nallan* discloses the use of nitrogen to remove any remaining fluorinated gas. However, *Nallan* discloses the use of nitrogen as an inert purge gas to be used *after* etching in a pump-out step to dilute any remaining fluorinated gas in the chamber and to prevent back-streaming of oil from the vacuum pump (Column 10 lines 64-67 - Column 11 line 1). The use of nitrogen gas during the pump-out stage *after* etching in *Nallan* does not make the use of nitrogen gas *during* etching obvious.

The Examiner additionally states that because *Nallan* teaches the use of nitrogen fluoride, and because nitrogen gas is known for its inert implanting qualities in etching, it would have been obvious for one of ordinary skill in the art to have flowed nitrogen gas in the invention. The Applicants previously respectfully requested the Examiner to provide support for this assertion. Without support for the Examiner's assertion, the Applicants submit that it is not obvious to add N<sub>2</sub> gas to etching chemistries having NF<sub>3</sub>.

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The Examiner also states that  $\text{NF}_3$  is an unstable gas and that it disintegrates into nitrogen, as disclosed by *Nallan*, and therefore the use of nitrogen as a carrier gas would have been obvious. The Applicants respectfully disagree. *Nallan* teaches that the inorganic fluorinated gas is chemically aggressive gas that would rapidly etch through the thin underlying silicon dioxide layer. *Nallan* further teaches that removal of the gas is necessary to prevent over-etching, and thus, the pump-out step is suggested after the etch step. *Nallan* explicitly teaches the use of nitrogen gas during this subsequent pump-out step, and not during the etching step. Therefore, under *Nallan*, it would not have been obvious for one of ordinary skill in the art to have flowed nitrogen gas during the etching step.

The Examiner also noted that nitrogen could have a flow rate of zero and referred to claim 3 of the present invention. Claim 3 has been amended to include a nitrogen flow rate above zero.

Thus, Applicants submit that independent claims 1 and 21, and claims 2-20 and 22-25 depending therefrom, are patentable over *Nallan*. Accordingly, Applicants respectfully request the rejection be withdrawn.

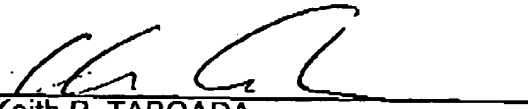
**CONCLUSION**

Thus, the Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone Mr. Keith Taboada at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

Sept 19, 2005

  
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